Author's response to reviews

Title: Charnley low-friction arthroplasty of the hip. Five to 25 years survivorship in a general hospital.

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Author's response to reviews: see over
Title: Charnley low-friction arthroplasty of the hip. Five to 25 years survivorship in a general hospital.

Reviewer 1

Version: 1 Date: 26 November 2007
Reviewer: B.M. Wroblewski,
Reviewer's report:

General
Would like to see survival tables rather than just a summary as Tab 1&2 also some details about follow up; what was the follow-up for the 23.8% available at the end of the study? How was decision made that revision should be carried out? clinical? radiological? One percent of hips is missing..please check.
Differences in terminology is understandable: eg: review -revision and I assume will be addressed by the Editors. These are some comments in order to speed things up.

Answers:

-In the survival analysis we have taken into account the number of events occurred and the number of patients censored in yearly periods. Due to this we have deleted this sentence on page 5 to avoid further confusion.

-We have added the survival tables that could be published as a supplement of the article.

-The 1% of missing hips was a calculation mistake. We have corrected it.

-The cause of revision was clinical failure.

Reviewer 2

Version: 1 Date: 10 January 2008
Reviewer: robert bourne
Reviewer's report:

Summary
This paper assesses the results of 404 Charnley low friction arthroplasties of the hip implanted between 1976 and 1993 in a general hospital by general orthopaedic surgeons. Survivorship at 25 years for both the stem and the cup was 83%. Survival was higher in those arthroplasties implanted in patients older than 60 years of age. The authors conclude that Charnley low friction arthroplasty undertaken at general hospital by general orthopaedic surgeons featured similar outcomes to those found in centres devoted to hip surgery.
Constructive Suggestions
Pg. 2, par 2, line 1 - please insert percentages after each of the complications.
Pg. 3, par 1 - the Swedish Hip Register has some excellent long term data of Charnley total hip replacements performed in high volume community, low volume community and academic centres. The authors should at least comment on the many publications which have been performed from this source as it directly relates to the subject matter of the paper. It would also provide a background to which the authors can compare their data to other similar general hospitals.
Pg. 4, par 1 - authors claim that the senior surgeon (DHV) learned the Charnley technique at Wrightington, yet I note that a Smith Petersen anterior approach without performing an osteotomy of the greater trochanter was performed. Do the authors feel they truly did the Charnley technique? Also, there should be some description of the bone cement used and whether or not first, second or third generation cementation was utilized.
Pg. 5, par 2, line 2 - this is a difficult line to understand. What do the authors mean by, â##â#i. 23.8 were revised regularlyâ##??
Pg. 5, Discussion, line 4 - it might be helpful for the authors to include a Table outlining the reported clinical results of the Charnley low-friction arthroplasty, dividing these into high volume community, low volume community and academic centres. This would give the readership an opportunity to compare the results of this paper with those published in the literature.
Pg. 6, line 1 - did the authors deep infection rate decrease with time? When did the authors start to use antibiotic prophylaxis? Did the authors use laminar air flow or body exhaust suits? Did the authors use antibiotic bone cement?
Pg. 6, par 3, line 1 - the authors have not included any health-related quality of life outcomes one would expect in a paper such as this. Similarly, one might expect a radiographic analysis of surviving patients as to whether there was definite, probable or possible loosening. I would recommend that the authors include this information.

Overall Assessment
This is an interesting manuscript which is well-written. I believe that it should be considered for publication with major revision. Specifically, the study would benefit from the inclusion of health-related quality of life outcomes (i.e. Harris HipRating, WOMAC, Oxford-12, ETC). The paper would also be strengthened by inclusion of radiographic follow-up. Once this is done, the authors might want to combine both the clinical failure and radiographic failure data such that the readership will have a better handle as to the true success of the Charnley low-friction arthroplasties.
Finally, it would be helpful to have a few clinical examples of radiographs of patients who are both successful and failures included in the manuscript.

Answers
1.-We have inserted the percentage symbol after each of the complications rates..
2.- We have included a new reference to Swedish register (reference 12), but we have not found explicit results about the differences between high volume community, low volume community and academic centers. Our aim was to show that few works evaluate results of this procedure in general centers without specific dedication to hip surgery. We have not found any work with a similar follow up in general hospitals.

3.- We have not performed the original Charnley technique in the approach and in the great trochanter osteotomy but the cementation, the low friction and the implant type did follow the Charnley principles. The cementation was first and second generation.

4. We have deleted the phrase: 23.8\% were revised… to avoid confusion

5.- It is partially answered in point 2. The few series published belong to general hospitals that have shorter follow up and we consider that your proposal about a comparative study is not interesting for the objective of this work.

6.- We have not analyzed if the infection rates have lowered in time. Antibiotic prophylaxis was not used until 1987. We have never used laminar air flow or body exhausts suits. We have used cement with Gentamicin. (Palacos®).

7.- We have not performed any health-related quality of life (QOL) outcomes assessment. Our study started in 1976 and in that year QOL assessment was not commonly used. It would be not reliable to perform this evaluation in this moment because we do not have the preoperatory measurements to compare the results. All stem loosening were “definite” as defined by Gruen, McNeice and Amstutz (Clin Orthop 141: 17-27, 1979).

Overall Assessment

8.- We used the Merle D´Aubigne scale for clinical and the Johnston criteria for the radiographic evaluation, but the objective of our study was only to know the clinical survival of the implant. We have defined the event for the survival analysis as the clinical failure that motivated surgical revision. The radiological failure has been analyzed in the thesis preceding this work (see summary below), but we think that it is not useful for the aim of the present work.
Summary

Low Friction Total Hip Arthroplasty. Long-Term Results of Acetabular Cup

Introduction / objective
Low Friction Arthroplasty (LFA) is the “gold standard” of total hip replacement. The results, when performed in the general setting, may not be as good as expected. The objective is to know the long-term results in a non-specialist hospital, the factors involve in them, and the repercussion of one variation of the original technique in the fixation of acetabular cup.

Material and methods
Two study groups are established in 221 LFA performed between 1976 and 1985 in a General Hospital, after apply selection criteria (primary surgery, no infection and special tunnel for fixation the acetabular cup) according to need surgical revision (198 LFA) o failure clinical or radiological (73 LFA). Data collected in a revision of clinical history in years 2000 and 2004 and in personal interview in 2000. To improve the radiographic study of arthroplasty failure and polyethylene wear, we use computational technology.

Results
Kaplan-Meier survivorship analysis using failure as revision showed probability of survival at 20 years of 97% for the acetabular component and 92% for the femoral component. The clinical or radiological failure was 9,6% for the cup and 35,6% for the stem. Accelerate polyethylene wear, poor cementation technique and high position is related to failure of acetabular component. Male, atrophic arthritis, poor cementation technique and varus position is related to failure of femoral component.

Conclusions
The results of LFA in a non-specialist hospital are similar to report in the bibliography, except for a high percentage of stem radiological failure. Poor cementation technique is related to failure of both components, but accelerated polyethylene wear is only related to acetabular failure. The supplementary tunnel for fixation of the acetabular cup may be slow your aseptic loosen.

9.-We added the new figures 1 and 4 showing cases with good and bad evolution respectively.